

REMARKS

Claims 1-4, 6, 9, 11-14, 16 and 19 have been amended to ensure consistent antecedent support for the elements that are claimed. No claims have been canceled and no new claims have been added. Accordingly, claims 1-20 remain pending.

35 U.S.C. §103

Claims 1, 3-11, 13-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over the admitted prior art (the APA) in view of Nobuoka, U.S. Patent 5,986,698, and further in view of Kato, U.S. Patent 6,148,031. Claims 2 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over the APA in view of Nobuoka and Kato, and further in view of Okayama et al, Us Pub. No. 2003/0122941. Reconsideration of the rejections is requested for the following reasons.

Independent claims 1 and 11 include, as part of the claimed combination, that the pixel signals accumulated in each of the pixels are output with interlace by subsampling the pixel signals for each line in a first signal read mode, and a sum of the pixel signals in the two pixels adjoining each other in the vertical direction are sequentially output

with non-interlace in a second signal read mode. The combination of the invention set forth in claims 1 and 11 also includes a rate converter for converting the number of the output images of the second video signal per a unit time into another number and from a non-interlaced scan into an interlaced scan. The combination set forth in claims 1 and 11, therefore, is not suggested to one having ordinary skill in the art from the APA discussed by Applicants in view of the Nobuoka and Kato references.

Nobuoka addresses the problem of conventional CCDs that are used in video cameras that are of the interlace type. In particular, Nobuoka states that the CCDs providing an interlace signal output make it difficult to generate both video signals of various kinds of standards (NTSC, PAL) and signals for a still image output medium (see, e.g. col. 2, lines 16-20 of the reference). Accordingly, Nobuoka proposes as the main object of the invention to use a non-interlace type CCD and process the non-interlace signals output from the CCD in two different ways in order to provide a moving image mode and a still image mode for the camera.

In the still image mode disclosed by Nobuoka, the non-interlace scanning type CCD reads image signals of one whole frame without adding charges of pixels in two horizontal adjacent lines in the same time period. This processing is distinguished from that required for conventional interlace scanning type image sensing devices when used in the still image mode (see, e.g., col. 4, lines 40-50 of the reference). As a result, the teachings of Nobuoka are limited to cameras using a non-interlace scanning type CCD to provide both moving image and still image modes.

On the other hand, the APA referred to in the Office Action (the Office Action cites page 2, lines 2-7 of the specification) describes generating a still image from a conventional CCD for a video camera (see page 1, lines 18-22 of the specification). The conventional video camera referred to by Applicants has a CCD of the type providing an interlace signal output. As noted in the Office Action, the APA refers to signal processing that involves the pixel signals of odd number lines to be read on a first field and the pixel signals of even number lines to be read on the second field, whereupon the still image is generated by sequentially converting the

signals of the first field and the second field. This processing for a still image, however, is not preferred by Nobuoka, and in fact the reference teaches away from processing pixel signals in this manner in order to avoid the image quality degradation that results (see col. 4, lines 40-50 of the reference). Therefore, Nobuoka teaches away from the suggested combination of the APA and Nobuoka, as proposed in the Office Action.

According to the present invention, the pixel signals accumulated in each of the pixels are outputted with interlace by subsampling the pixel signals for every one line in the first mode (still image mode), and, in the second mode (motion image mode), a sum of the pixel signals in the two pixels adjoining each other in the vertical direction are sequentially outputted, as set forth in claims 1 and 11. The claimed combination of processing for still and motion image modes is not taught or suggested by the combination of the APA and Nobuoka. Further, Kato is merely relied upon for disclosing image compression and decompression and therefore the reference does not overcome the teaching away in the prior

art of the proposed combination of the APA and Nobuoka.

Therefore, the 35 USC §103 rejection should be withdrawn.

With respect to claims 2 and 12, the Okayama reference is applied, however, these claims are respectively dependent on claims 1 and 11, and therefore the rejection should be withdrawn since the basis for rejecting claims 1 and 11 has been shown to be improper. Accordingly, claims 2 and 12 should be found to be patentable over the art of record along with claims 1, 3-11 and 13-20 for the foregoing reasons.

In view of the foregoing amendments and remarks, Applicants contend that the above-identified application is now in condition for allowance. Accordingly, reconsideration and reexamination are respectfully requested.

Respectfully submitted,

 32,846

John R. Mattingly  
Registration No. 30,293  
Attorney for Applicants

MATTINGLY, STANGER & MALUR  
1800 Diagonal Rd., Suite 370  
Alexandria, Virginia 22314  
(703) 684-1120  
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